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Book Review

Caroline E. Foster, *Science and the Precautionary Principle in International Courts and Tribunals. Expert Evidence, Burden of Proof and Finality* (Cambridge: Cambridge University Press, Cambridge Studies in International and Comparative Law, 2011), p. 376, ISBN 978-0-521-51326-5.

In recent years there has been a rise in the number of international disputes that are hard to settle because they involve scientific knowledge and the risk of future harm. Uncertainty then plays a central role. One of the parties to the dispute inevitably invokes the precautionary principle to support its thesis. Judges and arbitrators cannot be expected to have a full grasp of the wide range of scientific disciplines and techniques that disputes can involve (biology, toxicology, epidemiology, geology . . .). But even when science says that an issue lacks conclusive proof, international courts or tribunals must nevertheless proceed to apply legal rules. Judges and arbitrators are therefore increasingly led to rely on expertise and experts. This uncomfortable situation presents new challenges for international courts and tribunals who are poorly 'equipped' for facing them.

Against such background, the book of Caroline Foster focuses on the use of expert evidence, proof and the finality of adjudicatory decision-making in international dispute settlement under public international law. It addresses various "*international scientific disputes*" (p. xiii) generally related to environmental and/or sanitary matters (use of watercourses, protection of the marine environment and marine resources, construction of hazardous waste facilities, beef hormones, asbestos . . .). These conflicts arise from the application or interpretation of bilateral or multilateral treaties or even customary law. They were brought before the ICJ, ITLOS, arbitral tribunals operating under the UNCLOS, the WTO dispute settlement body (panels and Appellate body), the Permanent Court of Arbitration and other arbitral tribunals, including tribunals operating under the ICSID, with occasional references to the practice of international administrative tribunals or claims commissions, the European Court of Human Rights or the European

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Court of Justice. Their common feature is to stem from the risk of future harm: "*they look to the future*" (p. xvii); they involve "*prospective harm*" (p. xix).

Caroline Foster's book is the result of a thorough investigation that deserves credit for comparing the practice and procedures of a variety of courts and tribunals. In doing so, the author highlights an "*increasing coherence in the handling of procedural matters*", increasing relationships among the courts, and finally demonstrates that "*we are moving towards a time when they may potentially be viewed as forming part of the same court system*" (p. 3). According to Caroline Foster, a " '*community of international courts' is gradually forming*" (p. 3), and one of the signs of this evolution is that international courts and tribunals, beyond their differences, gradually develop a same way of handling uncertainties. From this point of view, the reader will appreciate the fact that the work of Caroline Foster not only fits into the evolution she analyses but also has a prospective dimension. In this respect, she identifies some trends towards more investigative procedures. International courts and tribunals indeed increasingly investigate scientific disputes themselves through on-the-spot visits, consultation with international organizations, appointment of independent experts . . . Finally, Caroline Foster shows how the evolution of the ways of producing evidence is symptomatic of the evolutions of international adjudication: "*The trend is away from a general judicial deference towards sovereign states and in the direction of greater procedural control over cases*" (p. 29).

Unless or until relevant rules and institutions are amended or supplemented, it is true that the role of international courts and tribunals remains crucial. States could and should lay down more detailed rules, but they generally do not, by lack of consensus and/or lack of political will. It is then judges who have to decide and address the issue "*as a matter of procedural fairness*" (p. 274).

After a remarkable introduction that clearly lays out the foundations of the study (Chapter 1), Chapter 2 addresses the co-operation of parties as a central element in the resolution of international scientific disputes. On the basis of a detailed description of several disputes, Caroline Foster shows that there is an increasing recognition of the need to reinforce the parties' commitment to resolving their disputes and managing their ongoing relationships through technical as well as political co-operation (p. 73).

Chapters 3 and 4 address how international adjudicatory procedure is developing and underline issues related to the retention by international courts and tribunals of their legal decision-making authority (p. 29).

Chapter 3 considers and compares the various ways used by international courts and tribunals to obtain expert evidence in scientific cases. A "*basic model of adjudication*" consists in the traditional approach that allows parties to present countervailing scientific evidence and appoint their own experts, cross-examination thus becoming very useful to test the strength of the parties' arguments. However, there is a move towards a more active judicial handling of cases, through more investigative and adversarial evidence-gathering mechanisms (appointment of experts, increasing judicial interactions with experts, management of expert witness-conferencing in international arbitration, on-the-spot visits, consultation with international organizations, reliance on their reports, *amicus curiae* . . .). These various procedures do not rule out but complement each other and in practice they are often used simultaneously. Here, international courts and tribunals 'learn by doing' and if the steps they make in this direction vary, the "*unmistakable trend is towards the use of procedures that bring greater judicial involvement in the scientific aspects of these cases*" (p. 131).

Chapter 4 investigates the role of adjudicators and the role of experts. In scientific and technical disputes, it is true that an "*expert's advice will impact closely on judicial appreciation of questions arising in scientific disputes, while continuing to require international tribunals to take full responsibility for their decisions*" (p. xv). It is certainly not the role of experts to decide a case (p. 30), but things are more complicated than that. Caroline Foster demonstrates how these kinds of dispute challenge the rationalist point of view, following which there is a clear-cut distinction between facts and law. Experts enlighten facts; tribunals apply law to facts . . . "*The law is normative, facts are physical*" (p. 137). This distinction is no longer operational or relevant. Factual elements can be "*unknowable*" (p. 341). "*Inevitably, it seems, experts will be drawn into questions of legal interpretation through their involvement in the application of legal terms*" (p. 77). It can be the case for example when trying to determine how norms with variable contents ("*à contenu variable*", Jean Salmon) or with an "*open texture*" (Hart), like rules related to "*necessity*" or else "*reasonableness*", must be understood. In fact, what is reasonable, necessary or proportionate in situations of

incomplete scientific knowledge? It depends on the context and each case represents a *unicum*.

At the very heart of the book, Chapters 5 and 6 deal with the burden of proof in disputes involving scientific uncertainty. They examine the potential for a reversal of the burden of proof under a precautionary approach.

Chapter 5 addresses the origins and logic of rules related to the burden of proof. These rules applied in international dispute settlement help ensure that parties have the opportunity to contradict the evidence they disagree with. They are "*consistent with a presumption of compliance by states with their international legal obligations, and their development has been guided by principles of fairness*" (p. 239). This explains the importance of transparency at all stages of the proceedings. However, when facing scientific uncertainty, is it not the case that international courts and tribunals have to accommodate fairness? That is the point of Chapter 6 that makes inroads into desirable directions for future developments. It explores the potential for a modification in the articulation or application of existing rules on the burden of proof, in order to allow the reversal of the burden of proof so as to give effect to the precautionary principle. The main question is then how to accommodate the precautionary principle in international adjudication.

The burden of proof is usually shouldered by the litigant in international adjudication. In situations of scientific uncertainty, does the precautionary principle reverse the burden of proof? To what extent may expert testimony be used to lift the burden? Caroline Foster argues for a precautionary *prima facie* case approach, provided that scientific uncertainty and the risk of harm in the case are above certain thresholds. Its application would depend on a judicial appreciation of the circumstances of a particular dispute. According to Caroline Foster, international courts and tribunals "*cannot maintain a rigid approach that turns a blind eye to the substantive effects of applying the rules on burden of proof where fairness requires a specific modification to the rules, or to the way in which they are applied*" (p. 241). This is made possible by the inherent powers of international courts and tribunals that may include the "*capacity to reverse the burden of proof to accommodate the need for precaution in order to ensure the sound administration of justice*" (p. 240).

Finally, in Chapters 7 and 8, Caroline Foster addresses the implications of ongoing developments in scientific knowledge for the finality of adjudi-

cation, and assesses different procedural options for challenging adjudicatory decisions in the light of subsequent scientific advances. The book here focuses on the generic forms of review: revision, the doctrine of nullity, the potential for balancing through appropriately designed forms of reassessment proceedings. Caroline Foster also ponders on issues arising under the doctrine of *res judicata*. According to her, "*continued respect for international judicial and arbitral decision-making depends on the availability of such review processes as 'safety valves' for disposing of difficulties that will otherwise undermine their authority*" (p. 282).

In the end, the book puts forward three recommendations. First, international courts and tribunals should welcome the precautionary approach or principle – Caroline Foster is right to consider that this is a semantic distinction – whether through expert scientific evidence from the parties and their appointed experts, or through experts directly appointed and consulted by international courts and tribunals. Second, international courts and tribunals should accommodate rules on the burden of proof in order to apply the precautionary principle in exceptional cases by exercising their inherent powers, this taking the form of a precautionary *prima facie* case approach. Third, international courts and tribunals' decisions should provide for the reassessment of cases when subsequent scientific developments may affect the basis of their decision.

On these complex and topical issues, Caroline Foster provides a very informative and enriching book. She devotes herself to a thorough analysis of numerous cases – an analysis that is as impressive as it is useful –, including written and oral proceeding materials. But the book is also forward-looking and informs an ongoing debate.

Indeed, the issue of the effect of the precautionary principle on evidence and proof has in practice arisen before international courts and tribunals. Some judges or arbitrators individually expressed the opinion that the principle should result in a reversal of the burden of proof. To date, however, no international court or tribunal has inferred from the precautionary principle such a consequence for the rules of evidence. The European Court of Justice, who sees in the precautionary principle a general principle of European Union law, does not admit it either, nor does the European Court of Human Rights, even though it has deduced positive obligations for States from the precautionary approach. Is an evolution still possible or even desirable? From a rational point of view, the precautionary principle should

not automatically lead to a reversal of the burden of proof. Proof of the absence of risk is, in cases of scientific uncertainty, more difficult to report than its existence and could become *probatio diabolica*, blocking technological progress and finally crystallizing into objections to the implementation of a precautionary approach. Such a result would raise legitimate concerns about a principle which is already controversial. It might even turn against the objective of sustainable development that implies, on the contrary, a reconciliation between a precautionary approach and economic development. However, if the precautionary principle cannot lead to a systematic reversal of the burden of proof, could it or should it justify a better allocation of the burden between the parties to an international proceeding?

In our 'risk societies' (Ulrich Beck), the precautionary principle is necessarily going to play an increasing role. One has to remember that in the Advisory Opinion on *Responsibilities and obligations of States sponsoring persons and entities with respect to activities in the Area* (1st February 2011, thus issued after the writing of Caroline Foster's book), the Seabed Disputes Chamber of the ITLOS saw in the precautionary approach a rule of customary international law, belonging to *due diligence* obligations. This irresistible evolution is bound to impact on procedural rules and international adjudication. The credit of Caroline Foster's book is to inform the debate, providing keys to understanding and anticipating evolutions. On the other hand, from a practical point of view, the need to change procedural law toward a reversal of the burden of proof is perhaps less present now because of the development of positive obligations for states to implement the precautionary principle. If one follows the Opinion of the ITLOS Chamber, a precautionary approach is part of the states' positive obligation of due diligence and consequently consists in obligations "to do" something. Accordingly, proof is lightened, not the burden itself but what has to be proved: the complainant does not have to prove the existence of a risk, but that the state has not set up a complete legislative and regulatory framework that would have allowed measuring the probability and dangerousness of harm, and eventually to take measures to prevent it. Proof of such failure does not present any particular difficulty.

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